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Reinventing the Welfare State: Micro- and Macro-economic Effects of Unconditional Basic Income and Participation Income Scenarios

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Key message [1]

Background

Technological change (automation, robotisation, AI) challenges labour markets and is likely to increase societal inequalities. This challenge asks for innovative policy answers for which scientific knowledge on the effects of viable policy scenarios is imperative. In this respect, field experiments and simulation studies might help to study the intended and unintended effects of promising policy scenarios, such as (un)conditional basic income (UBI), negative income tax (NIT) and participation income (PI)[2]. We employed a systematic review of 48 studies worldwide to analyse the quantitative effects of these policy proposals on employment, income inequality, poverty, health, subjective wellbeing and other social outcomes such as volunteering, trust and crime to learn from the evidence provided in these studies for policy making.

Policy Scenarios

In this TECHNEQUALITY policy brief, we summarize the main evidence and the policy lessons that can be drawn from the effects of various policy reform scenarios of UBI, NIT and PI. These reforms have been practiced and studied in various European countries, such as Finland, Spain, Italy, the UK and the Netherlands, and non-European countries, including the US, Canada, Kenya and India. The policy options are studied against the background of technological change and how that might affect labour markets and social inequalities. The extent by and the speed at which automation will be adopted in the industry and in the overall economy are key to forecast the effects on employment and income as well as on people's health and wellbeing and therewith on the social inequalities it brings about.

Policy Brief No. 1 (Levels et al., 2020) highlights that the low-skilled are most likely at risk of the adverse consequences of technological change. This, and the fact that UBI and PI scenarios entail low-income people, underlines the importance of studying the effects of these policy scenarios. Moreover, the policy brief concludes that the net effects of technological change depend on the institutions and government interventions and policies. This means that acquiring knowledge on the effects of alternative policy scenarios is highly recommended for policy making.

Key Results for Policy Making

Our results show that not a full or partial UBI, but an NIT and conditional PI or BI policy reforms create the best balance between efficiency and equity with respect to the effects studied (e.g. employment, societal costs, income inequality and poverty, health and wellbeing, social participation, trust and crime). The reason is that a guaranteed minimum income (GMI) in whatever form (NIT, PI) is a very effective way to reduce inequalities in terms of income and poverty but that the impact on labour supply and employment is dependent on its design (NIT and PI versus UBI) and level of generosity (partial versus full GMI). Maintaining work incentives (reduced claw-back rates) while safeguarding subsistence security (GMI) appears the optimal way of creating a good balance between promoting (part-time) employment and reducing inequality and poverty. Field RCT experiments in Europe suggest that, compared to so-called Workfare regimes with strict monitoring and sanctioning of non-compliance behaviour, activation regimes of tailored support and rewarding work efforts (reduced claw-back rates) tend to encourage (part-time) labour supply and enhance the quality of job matches. Guaranteed minimum income regimes - in combination with relaxing the strict linkage between work and income - also seem to reduce stress and improve mental health and subjective wellbeing. Moreover, GMI increases social and institutional trust (notably in the case-worker) and self-regulation. We also conclude from our systematic review that more scrutiny is needed on the impact of welfare state reforms taking account of technological change because only one (theoretical) simulation study is found on the effects of UBI on inequality and (perpetual) growth in which the impact of technological change is accounted for. The conclusion of that study was that compared to a UBI funded with a capital tax, a wage savings scheme (of 10% of wages) combined with investments of these savings in robots, increases growth and reduces inequality to a greater extent. Eventually, the researchers recommend national governments to utilise the methodology of field experiments and simulation studies to test alternative policy reforms as a challenging and valuable way to foresee the effects of alternative policies and to adapt their plans accordingly.

[1] Based on Somers, Melline A., Ruud J. A Muffels & Annemarie Kuenn-Neelen (2021), Deliverable 7.2, Technequality (forthcoming).

[2] For Unconditional Basic Income, see van Parijs (2004). The term Participation Income stems from Atkinson (1996) in which he proposes a universal but conditional GMI based on participation requirements, among which paid but also volunteer work, caring or societal activities.

Unconditional Basic Income and Participation Income: A Systematic Review on Their Effects

Intended and unintended effects

A guaranteed minimum income (GMI) either in the form of a universal basic income (UBI), negative income tax (NIT) or participation income (PI) has gained prominence in public debates on the welfare state in a number of European countries and elsewhere. The current debate about basic income inspired ideas for welfare state reforms partly stems from concerns about the income and employment prospects of people with insufficient or inadequate skills caused by the alleged impact of automation and technological progress on the labour market. If people with skill deficiencies cannot be adequately educated to match the rising skill demands in the future labour market, they run the risk of becoming long term unemployed or employed in low-paid insecure jobs and becoming in-work poor. A GMI in the form of UBI, NIT or PI might offer at least partly a solution to mitigate the adverse income and poverty effects of automation-induced job losses or the downgrading to lower-level jobs.

Policy lessons from a systematic review

A systematic review was conducted and policy lessons were drawn from 48 studies worldwide. Because of the rising number of studies over the last decades, the review encompasses RCT field experiments and simulation studies of UBI-like reforms while leaving out conditional cash transfer programmes (CCT) and laboratory experiments. All programmes aim at providing a GMI either for the population at large or for specific groups (such as welfare recipients or unemployed). The review included studies of the effects of the older NIT experiments in the United States and Canada during the late 1960s and 1970s and of the more recent RCT studies in the European context from the 1990s on.

Creating Work Incentives in GMI Schemes Through Reduced Claw-Back Rates Increase Employment

Employment and labour supply effects

The UBI simulations and UBI-NIT field experiments studies show largely similar but mixed results for the effects of UBI-like programmes on employment and labour supply (working hours). Only some small recent UBI experiments like the local Stockton UBI experiment (125 people) and the Ontario UBI pilot (1,000 people) report positive effects on labour supply and employment. In most studies the overall effects are insignificant or negative caused by the negative labour supply effects for specific groups (women with young children, older people) while being mostly small negative or small positive for others (married men). The small negative labour supply effect for men as is found in most studies is driven by the higher marginal tax rates on earnings while the negative effect for married women is driven by the stronger negative income effect caused by the GMI. The older UBI/NIT studies in the late 1960s and 1970s show overall substantial negative labour supply effects notably in the US (-5% to -17%) - which are however mostly insignificant - but recent studies re-estimating the original effects conclude that a number of methodological shortcomings[3] should be held responsible for the large negative effect sizes found. Correction for these, results in much smaller

[3] In the review the issues listed are: stratified sampling on pre-transfer income and selection bias, underreporting of earnings in surveys, not controlling for duration and combined treatments (GMI with job training) and parametric instead of non-parametric estimation.

negative, insignificant or even positive employment effects for particular groups.

Recent review studies suggest positive effects

Also, recent review studies by de Paz-Báñez et al. (2020) and by Gibson et al. (2020) on Western countries including Europe came to a similar conclusion. The first covered 50 experiments worldwide and concluded that the labour supply effects of a wide range of UBI, NIT, CCT and UCT (conditional and unconditional cash transfers), and laboratory experiments tend to be positive instead of negative as the original UBI/NIT studies in the US suggested (de Paz-Báñez et al. 2020). Some insignificant negative labour supply effects were found for very specific groups of people such as children, the elderly, the sick and disabled, women with young children and youngsters continuing education. The second review on 27 studies concluded that employment effects were inconsistent, although mostly small for men but larger for women with young children (Gibson et al. 2020). For cash transfer programmes, similar positive effects on employment were found by Bastagli et al. (2016).

NIT and PI perform better on employment than UBI

Our results show that not full or partial UBI, but a NIT and conditional Basic or Participation Income (PI) policy scenarios yield the best employment outcomes[4]. Work incentives are largely driven by marginal tax rates on earnings which are lower in NIT and conditional PI than in UBI plans where the marginal tax rate on earnings is 100% for incomes below the poverty threshold. The labour supply effects are therefore also negative but smaller in NIT and PI reforms. Studies that take account of behavioural labour supply effects will therefore lead to smaller negative employment effects in the case of NIT-PI than in the case of UBI.

Family Labour Supply and Social Welfare

The choice of studies to look at individual or family labour supply and for including social welfare effects or not, significantly affect the findings reported. One study shows that using such a family labour supply and social welfare framework yields positive instead of negative labour supply effects for women in the lower income deciles. In the view of the researchers, labour supply is not necessarily negative because the higher marginal tax rates go along with lower average tax rates because of the tax receipts from the extra earnings of low-income people. The net effect in the end depends on the simultaneous labour supply choices of the partners and working hours constraints notably for females. The study also showed that a NIT reform might yield net welfare gains when the negative income and welfare effect of the female partner will be compensated by the positive income and welfare effect for the spouse who increase working hours to compensate the reduced working hours of the female partner. It suggests that a family labour supply model instead of an individual labour supply model might provide a more realistic picture of the net effects. In addition, in terms of utility, the disutility of negative labour supply effects for women, notably with young children, should be weighted with the utility of extra time for caring and leisure. In other words, the extra time available for caring might lead to utility or welfare gains for the person and society at large, which compensates for the welfare losses due to female partners with young children who reduce their labour supply.

Employment effects of UBI-NIT experiments in Europe

The employment results for the BI RCT experiments in Europe, such as the partial UBI experiments in Finland and Spain (so-called B-MINCOME) are more positive or smaller negative compared to the original US UBI experiments. Either insignificant or very small positive labour supply effects are found in Finland in the first year (the results for the second year cannot solely be attributed to the treatment). In Spain, small negative labour participation effects are found overall, except for two conditional treatments, the active support and the earnings release group, for which the results are insignificant. These studies use a difference-in-differences approach without testing a structural labour supply model for which reason the effects need to be taken with caution.

Reduced claw-back rates in NIT and PI reforms in Europe seem to improve (part-time) employment

Also, the simulation and experiment studies in Europe show mixed evidence on employment. A Spanish simulation study on a conditional BI reform using a family labour supply and social welfare framework did not find any negative labour supply effects. The social welfare gains of a higher BI compensate the efficiency or employment losses of a higher tax rate. However, the so-called B-Mincome (GMI) field experiment in Barcelona found negative employment effects in most of the 10 treatments except for two conditional treatments with earnings disregard (reduced claw-back rate) and with active employment support. The simulation study of a rather generous PI in the UK using the EUROMOD tax-benefit model showed that a PI reform might lead to higher marginal taxes and reduced labour supply without however providing estimates. We

only found one recent PI-like RCT field experiment in eight cities in the Netherlands showing overall insignificant labour supply effects in most cities for most treatments. Only two cities showed positive significant (part-time) employment effects (working 8 hours or more) with earnings release and intensive support in the city of Utrecht and intensive support in Apeldoorn. These groups are similar to the two conditional treatments in the GMI experiment in Spain with better employment records. Hence, it seems that conditional basic income reforms provide the best guarantee for improving (part-time) employment by rewarding work through wage subsidies, earnings disregard and reduced claw-back rates. Also, conditional schemes providing extra or tailored support or counselling services appear to warrant better employment outcomes.

Impact on self-employment

Some experimental studies, specifically the BI pilot in Ontario, the BI experiment in Kenya and the permanent BI dividend in Alaska, showed the impact of these reforms on self-employment, firm births and entrepreneurial activity. The findings from the Ontario pilot study are based on survey data (without correction for attrition) and showed that more people in insecure labour positions moved into self-employment but also more people who got employed in full-time jobs during the experiment moved into self-employment. However, UBI-studies in Kenya (before and during Covid) and the dividend scheme in Alaska showed that more people started a non-agricultural business (without reducing employment in the agricultural sector) and that more people took up small scale entrepreneurial activities by starting a firm but only in the first years.

Research needed on trade-offs, experiment design and contextual effects

The results show mixed and inconclusive evidence on the labour supply effects of UBI-NIT schemes while in most cases the effects are insignificant or inconsistently negative or positive for particular groups. Furthermore, our review shows that the results are very much affected by the design of the study, the data (survey or register data) and the methodology used (family labour supply, social welfare). Eventually, we find that NIT and PI schemes perform best with respect to labour supply outcomes compared to full or partial UBI schemes. The reason is that the NIT-PI schemes yield lower costs and therewith lower marginal tax rates (because of lower claw-back rates) and hence, stronger work incentives for low-income people. Studies on the field experiments showed that wage subsidies, earnings release and extra support treatments seem to create the best employment outcomes. However, more research is needed into the trade-offs between efficiency and equity with a view to the access of people with health and/or educational impairments to part-time and fulltime work. At the same time, more research is needed into the contextual effects of BI and PI related reforms on wages, labour demand, job matches and self-employment also with a view to the consequences of technical change for job displacement and job creation.

Generous GMI Schemes Lower Inequality and Poverty but at a Cost

The studies utilise a wide range of income inequality indicators varying from Gini, the log mean deviation, to Atkinsons's and Foster's inequality index in which the level of inequality aversion is incorporated. For poverty, in most cases, a relative poverty threshold is used based on a certain fraction of the mean or median of equivalent household income in a country such as the 50% or 60% threshold used in EU commissioned research. In other cases, also absolute poverty thresholds are used such as the Market Basket Measure in Canada. Simulations and field experiment studies show that the effects on reducing inequality and poverty can be substantial especially in the case of a full UBI, but also in the case of a NIT or a generous PI. In most studies, the estimates on income inequality and poverty are based on a static micro-simulation model without taking account of behavioural employment effects. If the employment effects are negative, less people move out of poverty because some people reduce work and therewith income. The more generous the minimum income guarantee is, the more poverty and inequality is reduced but this comes at a cost. Generous GMI benefits ask for high budget costs and tax rates needed to fund the scheme leading to reduced labour supply and employment. These employment effects are however less negative in the case of a NIT or PI scheme compared to a UBI scheme because of the extra work incentives for low-income people working more due to the increased earnings disregard. A few studies taking the endogenous employment effects on board showed that the net effect on poverty and inequality reduction becomes rather small whereas in

some other studies they were even further reduced due to the work incentive effects on low-income people. One study comparing the inequality and poverty effects of UBI, NIT and PI-reforms, shows that the NIT and conditional BI or PI programmes at 50% level of the poverty threshold perform best in balancing efficiency (employment) and equity (inequality and poverty). Programmes at 100% level reduce poverty and inequality more but also reduce labour supply. The studies on the full UBI RCT experiments in India and Kenya also confirm that a BI programme cannot only promote wage and self-employment but especially also exert positive effects on reducing poverty. The studies on partial basic income field experiments such as the one among unemployed people in Finland showed that the material living standards of the people involved went up significantly because of which poverty is likely to be reduced. The PI simulation study in the UK showed that poverty and inequality is substantially reduced but without taking the endogenous labour supply effects into account. The study on the only PI-like RCT field experiment in the Netherlands did not view the effects on poverty or inequality. The BI-dividend programmes, all had positive effects on people's incomes, thereby reducing the likelihood of poverty. However, one study on the Alaska's Permanent Fund Dividend showed a rise in inequality in the longer-term due to different spending behaviour of high and low incomes (investments versus consumption). These findings urge for more research in which the effects of BI and PI programmes on income inequality and poverty are integrated and balanced with the effects on labour supply by also estimating labour supply and social welfare functions to get a total picture of the net effects. Micro-macro simulation studies might provide better insights into these equity effects taking also account of the consequences of technical change for the inequality on the labour market in terms of access to employment, wages and careers.

UBI-like schemes Improve (Mental) Health but Have Mixed Effects on Wellbeing and Other Social Outcomes

For health, and notably mental health, positive and significant effects were found notably in field experiments in low- and middle-income countries, but also in some high-income countries. A recent review on 27 studies worldwide (RCT and quasi-experimental data) came to a similar conclusion: "Evidence on health effects was mixed, with strong positive effects on some outcomes, such as birthweight and mental health, but no effect on others" (Gibson et al. 2020, p. 165). The India experiment in 20 villages (8 treatments) showed substantial lower odds of any illnesses in the last 3 months that needed treatment in the experimental group of villages than in the control group. The RCT UBI experiment in two of the poorest regions of Kenya showed that people in the experimental groups with short-term or long-term transfers had a significant lower chance to be ill or having any hospital consultations than people in the control group. Also, objective wellbeing (hunger) and depression scores were lower in the two experimental groups compared to the control group. In a recent but small Stockton UBI experiment the mental health scores were significantly better in the treatment groups. Positive health effects were also found in a study re-examining the survey data of the Canadian Mincome experiment in the 1980s viewing significant positive health effects (hospital separation rates due to accidents and injuries or to mental health issues) in Dauphin compared to a carefully matched control group of residents in Manitoba. Before the experiment, the health conditions were significantly worse in the treatment group in Dauphin but at the end of the experiment, no significant health differences were found anymore with the control group in Manitoba. Also in the Ontario Basic Income Pilot study, that was halted in 2019, the survey data analyses (raw data without controlling for attrition) show that participants reported better scores on their own and their children's general and mental health conditions at the end of the experiment than before. Treated people also show healthier behaviour with respect to tobacco and alcohol use, physical exercising and nutritious food consumption. People's perceived self-confidence and their outlook on life improved as well for the majority of the treated.

Based on the survey data, the partial UBI RCT experiment in Finland in 2017-2019 showed some positive significant effects on health and subjective wellbeing. More people in the experimental group rated their health as good or very good and less people reported having a disease, disability, mental disorder or felt down or sad. Instead, more people perceived to

have the ability to cheer up than in the control group. Also, subjective wellbeing scores were significantly better in the treatment group. In the Dutch participation income experiment, no significant effects were found on health and subjective wellbeing. In the Spanish partial basic income (B-MINCOME) experiment, no significant health effects were found but all (subjective) wellbeing scores were significantly higher in nearly all treatment groups. Furthermore, material deprivation scores were significantly lower in all treatment groups except in the unconditional minimum income group and the active support group. Finally, one study on the Alaska dividend dealt with the effect on health and mortality rates and showed that mortality rates increased shortly after the income transfers are received. This could potentially be explained by increased consumption or increased economic activities. Increased consumption might go hand in hand with substance abuse and economic activity with traffic accidents or heart attacks. The increase in deaths in the first week after income receipt is however partly offset by decreases in the three weeks after.

Social and institutional trust

In the study on the Dutch RCT welfare experiment, also positive but insignificant effects on social trust were found notably for the exemption group in Utrecht, Groningen, Deventer, Tilburg, Oss and Apeldoorn, but in Utrecht also for the extra support group. Only in Groningen, the effect was significant for the extra support and work bonus group. Survey data analyses in the Finnish UBI experiment (controlled for attrition) showed that the (former unemployed) participants got more trust in the municipality and the case-worker (institutional trust). Similar results on increased institutional trust levels in the case-worker were found in the Dutch PI experiment in two of the four cities for which data were available.

Social participation and crime

In the Spanish B-MINCOME experiment, significant but small effects were found on social participation and receiving social support but only in the conditional active support group, while volunteering decreased in the unconditional BI treatment.

Effects on *crime* were studied for the Alaska Permanent Fund programme and reduced net effects were found with only small (but significant) positive effects on substance abuse and police assistance but larger negative effects on property crime due to higher income receipts.

Lessons for Research and Policy

- **RCT-field experiments with different policy scenarios are a very valuable tool to test the effects of alternative policies**. The design, data collection and methodology of these experiments need careful consideration to assure that true causal effects are measured.
- **More integrated research is needed into the efficiency (employment) and equity (income inequality, poverty, social outcomes) effects** of GMI-like reforms to be able to acquire a more balanced view.
- **More scrutiny is needed on the heterogeneity of the income, employment and wellbeing effects** of GMI programmes dependent on peoples' health, skill and other personal and social disadvantages.
- **More research is needed into the contextual effects of BI and PI related reforms** on wages, labour demand, job matches and self-employment also with respect to the consequences of technological change (robotisation, machine learning, AI) for job displacement and job creation.
- **Most studies only view the short-term effects and not the longer-term outcomes of UBI-like reforms or field experiments.** There is need for research into the impact of UBI-like reforms on sustainable employment and job matches, lifetime income, but also on (mental) health and subjective wellbeing, care use, marital stability, school careers, lifelong learning and crime biographies also of their partners and children (intergenerational effects).
- **For reducing inequality and poverty, UBI-NIT or PI reforms seem to be most effective.** The more generous the minimum income guarantee is, the more poverty and inequality is reduced but this comes at a cost of high budget costs and high marginal tax rates. The NIT and conditional BI or PI programmes at 50% level of the poverty threshold seem to perform best in balancing efficiency (employment) and equity (inequality and poverty) goals.
- **NIT and PI schemes seem to perform best with respect to employment compared to UBI schemes.** The reason is that the NIT-PI schemes yield lower marginal tax rates and hence, stronger work incentives for low-income people also dependent on the level of the earnings disregard (work bonus). The field experiments showed that wage subsidies, or a work bonus and tailored support create the

best experimental conditions for transitions into employment.

- **Overall, positive health effects were found in various recent studies, on physical health and notably also on mental health.** Especially in low - and middle-income countries, a full or partial UBI grant or dividend seem to improve the wellbeing and health of the people involved. In high income countries, the effects on reducing (mental) health tend to be positive (financial stress, depression) but the evidence is mixed and inconclusive and need more scrutiny.

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